

Study on preventing measures for urban inundation in the sewer

Whole term

2005.9 ~ 2006.3

(Purpose)

In late years the excess rainfall more than ability for rainwater exclusion of the sewer is generated frequently. We introduce a new way to improve heavy inundation damage in the situation time and finance is limited. We introduce a new way of thinking for conventional measures to achieve the purpose in the situation that time and finance are limited to and must switch a measure.

In the Sewer General Inundation Measure Plan (SGIMP) , we set a district having necessity to do measures chiefly in a city. And in this plan, structural measures and non-structural measures by Public-act / Self-act synthetically both should be applied. Our purpose is to minimize the damage by the urban inundation immediately and effectively for past maximum-scale rainfall.

This investigation is aimed at establishing concrete process to design the SGIMP arranged sewer administrator as main body, and cooperating with river administrator and road administrator and inhabitants and other stakeholders such as enterprises.

(Results)

1 . A concept of technique to draw up a plan

For concentrated downpour, we assume an expensive district of damage potential a Core Area and draw up inundation prevention measures in the district; When it is effective in damage reduction of a Core Area; an investigation area is a drainage ward including the district. Inundation simulation utilizes positively to examine evaluation of an existing institution and effective institution placement. Furthermore, SGIMP is based on cooperation such as inhabitants by combination of various bodies and devises it. The image to draw up the plan is shown in figure 1.

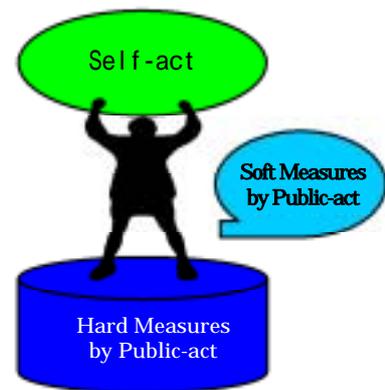


Fig1 The Image to draw up a Plan

2 . A flow to draw up plan

SGIMP is performed by 1) ~ 5) following procedures.

1) Fundamental investigation

It is a principle that an area performing basics investigation to draw up SGIMP intends for all of sewer plans area in local authorities.

2) Setting of plan target

The target rainfall uses the rainfall of the greatest precipitation in sewer arrival time from past rain generated in an investigation district, or the large-scale rainfall based on viewpoint to prevent of the serious disaster beforehand in the other area.

The Core Area sets it with category A, B, C from the viewpoint of "protection of life", "security of a city function", "and protection of personal property" and sets the Function Preservation Water Depth about each category.

The SGIMP sets a plan period (almost, five years) to achieve the measures effectively combined hard and soft measures by Public-act /Self-act early.

3) The Core Area

The procedure of setting of a Core Area sets a district becoming a candidate taking measures chiefly in consideration of damage potential in urban city. As a result of having simulated it about the present situation with the object rain, a candidate district becoming the water depth more than the Function Preservation Water depth sets it as a Core Area.

4) Measures investigation

Measures combine structural measures and non-structural measures by Public-act / Self-act by cooperation with the various subject including inhabitants and choose. The draft of a manual arranged measures examples by Public-act / Self-act. In addition, measures plan shall grasp the effect that the damage reduces by simulating it.

5) Decision of the most suitable plan and priority evaluating

Evaluation of the most suitable plan is performed from plural measures plan drafted in every Core Area. An evaluation item assumes economy, safety, degree of influence to economic activities, and possibility for early realization. Importance of each evaluation item is evaluated from general point of plan view by reason that they are different depend on the aim that accepted character of an Important Point Measure. We compiled the above and made "a draft of SGIMP Manual".

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key words

Urban inundation, Inundation analysis, Self-act, Public-act, Structural measures, Non-structural measures